WHAT IS CLAIMED IS:

1. An asynchronous interference avoiding method in a network, comprising:

a first step wherein a slave station, which can temporarily serve as a master station (a temporary master station), in a temporary master station interposition-type network receives a collision control downward packet from a first temporary master station, which temporarily serves as a master station, and judges whether or not a unique word for synchronization contained in the collision control downward packet is detected;

a second step wherein, when the slave station could not have detected the unique word in the first step as a result of interference caused by the send of the collision control downward packet from the first temporary master station and a second temporary master station as another temporary master station in different timing, the slave station counts the number of times of unique word undetection;

a third step wherein, when the number of times of receive of the collision control downward packet and the number of times of unique word undetection have exceeded or have become equal to respectively preset thresholds, the slave station judges, that asynchronous interference with the first temporary master station has taken place, stops an attempt to synchronize with the first temporary master station, temporarily functions as a third temporary master station, and performs send/receive in slot timing of the third temporary master station;

a fourth step wherein the third temporary master station searches slots in all frequencies being used for a slot, which exceeds or is equal to a preset threshold and has the highest receive field strength, and judges whether or not the slot meeting the requirements has been detected;

a fifth step wherein, when the slot meeting the requirements has been detected in the fourth step, the third temporary master station judges that the slot is one in interference with the first temporary master station, followed by the send of an interference detection packet through a send slot corresponding to the detected slot in a continuous manner by the number of times which exceeds or is equal to a preset threshold;

a sixth step wherein, when the interference detection packet from the third temporary master station has been sent in the same timing as the receive slot in the first temporary master station or the second temporary master station, the first temporary master station or the second temporary master station recognizes the receive of the interference detection packet and hops to a channel, which has been computed using random numbers, to avoid the interference of the collision control downward packet; and

a seventh step wherein, when the first temporary master station has hopped to a new channel in the sixth step, the third temporary master station hops to a channel corresponding to the channel of the first temporary master station, is returned in its function to the slave station, and receives the collision control downward packet from the first temporary

master station.

2. The asynchronous interference avoiding method according to claim 1, wherein, in the sixth step,

when the interference detection packet has been sent from the third temporary master station in timing different from that in the slot of the first temporary master station and the second temporary master station, the first temporary master station and the second temporary master station cannot detect the unique word and, when the count of the number of times of unique word undetection has exceeded or has become equal to a preset threshold within a preset time period, the first temporary master station and the second temporary master station each judge that the slot is an interfered one, followed by hopping to channels which have been computed respectively using random numbers.

3. The asynchronous interference avoiding method according to claim 1 or 2, wherein the fifth step comprises

an eighth step wherein, when the slot meeting the requirements could not have been detected in the fourth step, the third temporary master station judges whether or not the investigation of all the slots has been completed, and, when the investigation has not been completed, staggers the slot timing by half cycle, followed by return to the fourth step to again investigate the receive field strength of all the slots.

4. The asynchronous interference avoiding method

according to any one of claims 1 to 3, wherein, in the eighth step, when the investigation of all the slots has been completed, the processing is ended.

5. The asynchronous interference avoiding method according to any one of claims 1 to 4, wherein the first step comprises

a ninth step wherein, when the first temporary master station and the second temporary master station each send the collision control downward packet in a synchronized state through the same channel, the slave station detects the unique word and, since the received packet is a packet wherein the signal of the first temporary master station has been interfered with the signal of the second temporary master station, detects an error, and, as soon as the number of times of receive of the collision control downward packet and the number of times of packet error detection have exceeded or have become equal to respective preset thresholds, judges that interference with the first temporary master station has taken place, followed by the send of a channel switching request packet to the first temporary master station and the second temporary master station, and

a tenth step wherein the first temporary master station and the second temporary master station receive the channel switching request packet and hop to channels which have been computed respectively using random numbers.

6. The asynchronous interference avoiding method

according to any one of claims 1 to 5, wherein the first step comprises

a step wherein, when the first temporary master station and the second temporary master station send the collision control downward packet through respective separate channels, the slave station detects the unique word and, since no packet error is detected, judges that the slave station is in synchronization with the first temporary master station, and operates according to the operation of ordinary adhoc protocol.

7. The asynchronous interference avoiding method according to any one of claims 1 to 6, wherein, in the third step, when the number of times of receive of the collision control downward packet is equal to or less than a preset threshold, or when the number of times of unique word undetection is equal to or less than a preset threshold, the step is returned to the first step.

8. The asynchronous interference avoiding method according to any one of claims 1 to 7, wherein, in the ninth step, when the number of times of receive of the collision control downward packet is equal to or less than a preset threshold, or when the number of times of packet error detection is equal to or less than a preset threshold, the step is returned to the first step.

9. The asynchronous interference avoiding method according to any one of claims 1 to 8, wherein

the third step comprises a tenth step wherein, when the slave station temporarily functions as a third temporary master station, in all utilizable slots, the interference detection packet is continuously sent by the number of times which exceeds or is equal to a preset threshold, and

when the tenth step is executed, the processing in the fourth step and the processing in the fifth step are not carried out.

10. The asynchronous interference avoiding method according to any one of claims 1 to 9, wherein

the fourth step comprises an eleventh step which comprises: upon the detection of the slot meeting the requirements, making an examination on whether or not the unique word is detected; when the unique word has not been detected, staggering the position of the slot by "1" bit before; making an examination on whether or not the unique word is detected; repeating said procedure in a range such that an electric field can be detected; and, when the unique word has been detected, sending a channel switching request packet through a send slot corresponding to said slot to allow the first temporary master station or the second temporary master station to perform channel hopping, and

when the eleventh step is executed, the processing in the fifth step is not carried out.

11. A storage medium comprising, recorded thereon, a program which can execute the asynchronous interference

avoiding method according to any one of claims 1 to 10.

12. A system for avoiding asynchronous interference in a network, comprising:

a TDMA-TDD processor for performing processing regarding TDMA-TDD;

a clock section for generating a periodic pulse signal which is sent to an RF section and the TDMA-TDD processor;

an adhoc protocol processor for processing a protocol used in an adhoc network;

a storage for the number of receive packets, for counting and storing received packets;

a storage for the number of times of unique word undetection, for storing the number of times of undetection of a unique word of a collision control downward packet sent from a temporary master station of the network;

a storage for the number of times of error detection, for storing the number of times of detection of an error in the received packet;

a hop destination channel computing section which generates random numbers to compute a channel to which next hopping is performed; and

a plurality of slave stations which can temporarily perform the operation of the temporary master station, wherein

when the TDMA-TDD processor has detected the unique word for synchronization of the temporary master station with the slave station, and, when the number of times of receive of the collision control downward packet in the storage for the number

of receive packets and the number of times of detection of an error in received packet in the storage for the number of times of error detection have exceeded or have become equal to respective preset thresholds, the adhoc protocol processor judges that interference has taken place between a first temporary master station and a second temporary master station as another temporary master station among the temporary master stations which send information to the slave station, while, when the TDMA-TDD processor in the slave station cannot detect the unique word and when the number of times of receive of the collision control downward packet in the storage for the number of receive packets and the number of times of unique word undetection in the storage for the number of times of unique word undetection have exceeded or have become equal to respective preset thresholds, the adhoc protocol processor judges that interference has taken place between the first temporary master station and the slave station.

the TDMA-TDD processor, based on the judgment, made by the adhoc protocol processor, such that interference has taken place between the first temporary master station and the second temporary master station, sends a channel switching request packet to the first temporary master station and the second temporary master station through the RF section for performing the send/receive of radio waves, modulation, and demodulation, while, based on the judgment, made by the adhoc protocol processor, such that interference has taken place between the first temporary master station and the slave station, the slave station temporarily functions as a third temporary master

station which continuously sends, by the preset number of times, an interference detection packet through a send slot corresponding to a slot, among slots in all frequencies being used, which exceeds or is equal to a preset threshold and has the highest-receive field strength,

the hop destination channel computing section, based on the channel switching request packet received by the first temporary master station and the second temporary master station, generates random numbers to compute a channel to which next hopping is performed, while, in the first temporary master station or the second temporary master station, upon judgment on the receive of the interference detection packet, or upon judgment on undetection of the unique word of the interference detection packet, or upon judgment of the interference detection packet as an error packet, in which an error has been detected, in order to avoid interference, the hop destination channel computing section generates random numbers to compute a channel to which next hopping is performed, and

the third temporary master station, when the first temporary master station has performed channel hopping, hops to a channel corresponding to the channel of the first temporary master station and then returns in its function to the slave station to again receive, as the slave station, the collision control downward packet from the first temporary master station.

13. The asynchronous interference avoiding system according to claim 12, wherein the TDMA-TDD processor comprises:

a frame processor which transfers, among packets received from the RF section, only a packet related to the adhoc protocol processor to the adhoc protocol processor;

a slot processor which extracts a receive packet of a designated slot from a receive bit string received from the RF section and embeds a send packet received from the frame processor in a designated slot followed by transfer to the RF section;

a unique word check section which detects the unique word from the receive packet and notifies the adhoc protocol processor of the result of whether or not the unique word has been detected;

an error detector which examines whether or not there is an error in the receive packet, notifies the adhoc protocol processor of the result of error detection, and, when no error has been detected, transfers the received packet to the frame processor and receives a receive packet from the unique word check section which has detected the unique word; and

field strength investigation means for investigating the receive field strength, and wherein

the adhoc protocol processor, every time when the notification of the undetection of the unique word from the unique word check section has been received, addes "1" to the value stored in the storage for the number of times of unique word undetection and stores the obtained value in the storage for the number of times of unique word undetection; every time when the notification of receive packet error from the error detector has been received, adds "1" to the value stored in the

storage for the number of times of error detection and stores the obtained value in the storage for the number of times of error detection; and every time when the notification of unique word detection or undetection from the unique word check section has been received, adds "1" to the value stored in the storage for the number of receive packets and stores the obtained value in the storage for the number of receive packets.